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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/616,939	07/11/2003	Yukari Aoki	03500.017408	3022
5514 7590 01/02/2008 FITZPATRICK CELLA HARPER & SCINTO 30 ROCKEFELLER PLAZA NEW YORK, NY 10112			EXAMINER GOMA, TAWFIK A	
			ART UNIT 2627	PAPER NUMBER
			MAIL DATE 01/02/2008	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

10/616,939

**Applicant(s)**

AOKI, YUKARI

**Examiner**

Tawfik Goma

**Art Unit**

2627

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 31 August 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

This action is in response to the RCE filed on 9/28/2007 and the response filed on 8/31/2007.

#### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawaguchi et al (US 6826131) in view of Kagami et al (US 5341349).

Regarding claim 1, Kawaguchi discloses a magneto-optical recording medium comprising: a resin substrate (15, fig. 1 and col. 6 lines 35-36); an underlying layer provided on the substrate (10, fig. 1); and a magnetic layer having at least a magnetic domain wall displacement layer in which a magnetic domain wall is displaced (11, fig. 1) toward a side of a higher temperature according to a temperature gradient in the magneto-optical recording medium upon reproduction (28, fig. 1 and col. 4 lines 10-15), a recording layer storing information (13, fig. 1), and a switching layer provided between said magnetic domain wall displacement layer and said recording layer (12, fig. 1), the switching layer having a temperature lower than that of each said layer comprising the magnetic layer (col. 7 lines 19-40), wherein the underlying layer is adjacent to the magnetic domain wall displacement layer (fig. 1). Kawaguchi fails to disclose wherein the underlayer is formed of a first and second underlayer and said second underlying layer is adjacent to said magnetic domain wall

displacement layer, said first underlying layer is adjacent to said second underlying layer and on the side of said substrate, and said first underlying layer has a lower density than a density of said second underlying layer. In the same field of endeavor, Kagami discloses first and second underlayers (12, 13 fig. 5) wherein the first underlayer is adjacent to a resin substrate (12, 11, fig. 5 and col. 3 lines 33-37) and the first underlying layer has a lower density than a density of the second underlying layer (col. 2 lines 41-57). It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the recording medium disclosed by Kawaguchi by providing a first and second under layer with different densities. The rationale is as follows: One of ordinary skill in the art would have been motivated to provide the first and second underlayer in order to increase the magnetic sensitivity and the mechanical strength of the medium (see Kagami col. 2 lines 52-57)

Regarding claim 2, Kagami further discloses a method of producing a medium comprising a film-forming step of forming a first underlying layer and a second underlying layer on a substrate by sputtering, wherein in said film-forming step, a sputtering gas pressure during formation of said first underlying layer is higher than a sputtering gas pressure during formation of said second underlying layer (table 3 and col. 9 lines 54-61).

Regarding claim 3, Kagami further discloses wherein in said film-forming step, said second underlying layer is continuously formed on said first underlying layer by changing a gas flow rate after said first underlying layer is formed (col. 9 lines 54-61).

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kawaguchi et al (US 6826131) in view of Kagami et al (US 5341349) as applied to claims 1-3 above and further in view of Chen (US 4202932).

Regarding claim 4, Kawaguchi in view of Kagami disclose everything claimed as applied to claim 1 above. Kagami further to disclose the method of producing the disk including the step a film-forming step of forming a first underlying layer and a second underlying layer on a resin substrate by sputtering (col. 9 lines 54-61). Kagami fails to disclose wherein in said film-forming step, a distance between a target and said substrate during formation of said first underlying layer is larger than a distance between the target and said substrate during formation of said second underlying layer. In the same field of endeavor, Chen discloses a method of controlling a deposition rate or density of the layer to be formed by controlling a distance between a substrate and a target during sputtering (col. 5 lines 33-41). It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the method of producing the medium disclosed by Kawaguchi in view of Kagami by controlling a distance from substrate and a target. The rationale is as follows: One of ordinary skill in the art would have been motivated to control a density of the layer by controlling the substrate to target distance as a well known alternative parameter set for controlling the deposition rate.

#### ***Response to Arguments***

Applicant's arguments filed 8/31/2007 have been fully considered but they are not persuasive. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

In response to applicant's arguments regarding the Kagami reference being directed to domain wall displacement on recording, this argument is not persuasive because Kagami is not

relied on to show domain wall displacement action during reproduction, and the Kawaguchi reference fully discloses domain wall displacement during reproduction as applied above.

Regarding applicant's argument that the dielectric layers of Kagami correspond to the recording layers of the applicant's invention and would be placed as a dielectric layer adjacent to a recording layer (between 13 and 14 in Kawaguchi), this argument is not persuasive for the following reasons. First, the recording magnetic film of Kagami acts as the only magnetic layer for both recording and reproduction. Second, applicant is suggesting a different combination than the one proposed by the examiner. The combination of Kagami and Kawaguchi in the rejection replaces the present dielectric layer of Kawaguchi (10), with a dual layer dielectric layer of Kagami. Therefore, the dielectric layers of Kagami would be adjacent to the Domain Wall Displacement reproduction layer (11) of Kawaguchi as a result of this combination. The advantages of providing the dual layer dielectric layer is to both increase the mechanical strength of the medium and the magnetic sensitivity. Applicant has not presented any arguments with respect to the increased mechanical strength of the medium as a motivation for the combination.

With respect to applicant's arguments regarding the motivation of increasing the magnetic sensitivity of the DWD layer (11) of Kawaguchi, this argument is also found unpersuasive for the following reasons. Applicant correctly states that the dual layer structure of Kagami increases the recording sensitivity of a recording magnetic layer in Kagami by reducing the coercive force of the recording magnetic film, but contends that this advantage is limited to promotion of recording sensitivity and would have no advantage in the combination of Kagami and Kawaguchi in promoting domain wall displacement type reproduction. The examiner respectfully disagrees with applicant's contention. The examiner agrees that the dielectric layers

have the advantage of reducing the coercive force of the magnetic layer of Kagami, thereby increasing the magnetic sensitivity of the Kagami recording layer. This advantage of reducing the coercive force and increasing magnetic sensitivity is not isolated to the promotion of domain wall displacement in magnetic recording only. That is, the dielectric layers would still promote domain wall displacement by increasing in magnetic sensitivity and decreasing the coercive force of the DWD layer (11) of Kawaguchi (see Kagami, col. 5 lines 39-45). One of ordinary skill in the art could clearly use the advantage of promoting domain wall displacement in a magnetic layer to apply to a reproduction magnetic layer in Kawaguchi in making the combination.

### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tawfik Goma whose telephone number is (571) 272-4206. The examiner can normally be reached on 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Korzuch can be reached on (571) 272-7589. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Tawfik Goma/  
12/18/2007

/William Korzuch/  
SPE, Art Unit 2627